Remarks

Hereafter, Applicant first provides Applicant's remarks related to the Examiner's "Response to Argument" section of the most recent Office Action and thereafter Applicant restates the remarks from the most recent response to Office Action as those remarks are still applicable here in response to the paragraphs in the current Office Action numbered 2-5. The numbered paragraphs below correspond to the similarly numbered paragraphs in the current Office Action.

With respect to the Examiner's "Response to Argument" section that begins on page 16 of the current Office Action, Applicant traverses the rejection. To this end, referring to Fullerton, paragraphs 115 through 116 teach another method by which a single object position estimate can be generated. To this end, referring to Fullerton's Fig. 13, Fullerton teaches that the positions of radios 1304 and 1308 are known and that a radio 1312 is mounted to a movable object whose position is to be determined. Fullerton teaches that the distances d2 and d3 between radios 1304 and 1312 and radios 1308 and 1312, respectively, can be determined and used to identify the "position" (singular) (see paragraph 116, lines 11-14) of radio 1312 through use of a common triangulation method. Thus, while Fullerton's paragraph 115 and 116 embodiment clearly identifies two distances, the embodiment only identifies one position estimate by combining the two distances via a common triangulation method. Once again Applicant points out that specifying a distance from a point is not akin to specifying a position estimate. If one states that a vehicle is 500 miles from Denver, the distance specification alone does not indicate a position.

Referring to Fullerton's paragraph 117, Fullerton teaches another position determining process that is similar to the process described in paragraphs 115 and 116 except that in paragraph 117 the radios 1304 and 1308 are passive and the distance d1 between those two radios is known. While paragraph 117 teaches another position determining algorithm, nothing in Fullerton teaches or suggests using multiple position

determining algorithms together or in parallel and instead Fullerton teaches that position determining algorithms are to be used as alternatives (i.e., each of the different position algorithms is described as a different embodiment, not as part of some parallel embodiment). In the event that the Examiner maintains this rejection Applicant requests that the Examiner point out specific teachings in Fullerton that even remotely suggest that multiple position estimating processes should be used in conjunction to generate a single estimate - Applicant has scoured Fullerton and has been unable to identify even a single suggestion to this effect.

For at least the reasons above Applicant believes that claim 53 and claims that depend there from are patentable over Fullerton and requests that the rejections be withdrawn. Comments above are applicable to claim 87 and claims that depend there from and therefore Applicant requests that claim 87 and dependent claims be indicated as allowed.

With respect to the comments made about claim 54, claim 54 has been amended to require generating a separate and distinct confidence factor for each of the first and second estimates. Fullerton's paragraph 110 teaches that any error becomes a correction factor that is subtracted from all subsequent distance measurements. Thus, whatever Fullerton's correction factor is, that factor is the same irrespective of measurements and the single correction factor is used to adjust each and every distance measurement and therefore Fullerton teaches away from generating separate and distinct confidence factors for measured values. Here Applicant again notes that the correction factors are related to "distances" and not to "position" estimates as required by claim 54. For at least these additional reasons Applicant requests that claim 54 be allowed over Fullerton.

Turning to claim 55, claim 55 requires identifying the estimate having the highest confidence factor as the final estimate. Fullerton fails to teach or even remotely suggest this limitation. Here, again, Applicant points out that Fullerton teaches that the correction factor is applied to all measured distance values meaning that there is only

one correction factor and therefore there Fullerton cannot possibly teach that one correction factor is higher than another (i.e., there is only one correction factor in Fullerton).

With respect to claim 56, claim 56 requires identifying first and second regions within a space and confidence factors are assigned as a function of juxtaposition with respect to the regions. Fullerton fails to teach or suggest these limitations.

With respect to claims 61 and 65, while Applicant provided convincing arguments as to why each of those claims is novel over Fullerton in the most recent response to Office Action, the Examiner appears to have ignored the arguments and therefore Applicant cannot determine how best to respond. To the extent that the Examiner maintains the current rejection of those claims Applicant requests that the Examiner indicate why each of those claims is continuing to be rejected so that the Applicant can respond accordingly.

With respect to claim 82, the comments above with respect to claim 1 are applicable here. To this end, as explained above, Fullerton's paragraphs 115 through 117 teach multiple distance estimates that are then used to generate a single position estimate via a triangulation method. Claim 82 requires generating two separate position estimates. Distance estimates are clearly not the same as position estimates (again, 500 miles from Denver does not alone enable estimation of a position – a direction is also needed). Thus, Fullerton fails to teach or suggest two position estimates and instead only teaches generating a single position estimate. For this reason Applicant requests that claim 82 and claims that depend there from be allowed.

The following comments and remarks were made in the previous response to Office Action.

2-3. The Office Action rejected claims 53-56, 58-70, 72-81, 87-92, 100-104 and 106 as anticipated by Fullerton. Applicant respectfully traverses this rejection.

With respect to claim 53, claim 53 requires, among other things, using first and second subsets of position information to identify first and second WID position estimates and then using the first and second estimates to identify a final WID position estimate.

Fullerton fails to teach or suggest generating first and second position estimates. Fullerton teaches a system for identifying the position of an object or a device by identifying a distance of the object from a fixed location and identifying a direction from the fixed location to the object and then using the distance and direction information to identify a single location estimate. A distance alone clearly is not a position estimate. Similarly, a direction alone is not a position estimate. To this end, if someone were to state that a vehicle was five hundred miles from Denver Colorado, the distance specification alone would not indicate a position. Similarly, if someone were to state that a vehicle is directly east of Denver Colorado, the direction specification would not alone indicate a position. However, the combination of a direction and a distance does comprise a single position estimate. Thus, Fullerton teaches a method for generating a distance estimate and a direction estimate and using the direction and distance estimates together to generate a single position estimate as opposed to generating first and second position estimates and using the first and second estimates to generate a final estimate.

For at least the above reasons Applicant believes that claim 53 and claims that depend there from are novel over Fullerton and requests that the rejection thereof be withdrawn.

With respect to the dependent claims, many of the dependent claims include limitations that are not taught or suggested by Fullerton. For example, claim 54 requires, among other things, the step of generating a confidence factor for each of the first and second estimates where the confidence factors are indicative of the accuracy of the first and second estimates. The portion of Fullerton cited in the Office Action as teaching confidence factors (i.e., paragraph 110) has nothing to do with confidence

factors. A confidence factor is a factor that indicates likelihood that an estimate is accurate (see last two sentences in paragraph 13 of the present specification). Fullerton's paragraph 110 describes a correction factor, not a confidence factor. More specifically, Fullerton teaches that a calibration process can be performed where a transceiver is positioned at known distances from the location of another transceiver and then the transceivers can ping each other to correlate time of signal flights with distances. For instance, distances between the two transceivers may be 10 feet, 20 feet, thirty feet, and so on. Here, after calibration, when a time of flight does not precisely match up with one of the stored times of flight, Fullerton teaches that a correction factor can be used to more precisely identify distance between two transceivers (e.g., a distance of 15 feet may be identified that does not precisely match up with the 10 or 20 foot data generated during the calibration process). Thus, a correction factor is clearly different than a confidence factor and, for this additional reason, Applicant believes that claim 54 is novel over Fullerton and requests that the rejection be withdrawn.

Each of claims 55, 56 and 58 further limit claim 54 and specifically add limitations that are related to the confidence factors. Because Fullerton fails to teach or suggest confidence factors, Fullerton cannot possibly teach or suggest these additional limitations to confidence factors.

With respect to claim 61, claim 61 requires that the position information used to generate each of the first and second estimates include signal strength information. Even if Fullerton's direction and distance estimates were some how construed as position estimates, while the distance estimate relies on signal strength information, the direction estimate does not and therefore claim 61 is novel over the Fullerton teachings.

With respect to claim 65, Applicant notes that each of Figs. 13 and 15 and accompanying specification teaches multiple transceivers that each generate a distance estimate and where the distance estimates are then combined to generate a single location estimate. Here, as in the discussion above with respect to claim 53, distance

estimates are not position estimates and Fullerton only generates a single position estimate despite generating multiple distance estimates. Claim 65 requires N-2 position estimates in addition to the first and second position estimates and therefore is novel over Fullerton for this additional reason.

Claim 67 further requires identifying confidence factors that are not contemplated by Fullerton.

Claim 87 includes limitations that are similar to the limitations in claim 53 and is believed to be novel over Fullerton for the reasons discussed above. More specifically, claim 87 requires generating first and second position estimates and using the first and second estimates to generate a final position estimate. Fullerton teaches generating a direction estimate and a distance estimate and using those estimates to generate a single position estimate. Distance and direction estimates are not position estimates.

Claims that depend from claim 87 include additional distinguishing limitations. To this end, claim 89 requires that the location related characteristics that are used to generate the first and second estimates be signal strength information and claim 90 requires that the most accurate of the first and second estimate be used as the final estimate. Fullerton fails to teach or suggest any of these additional dependent claims and therefore these claims are novel over Fullerton for these additional reasons.

Claim 100 includes limitations that are similar to the limitations in claim 53 and is believed to be novel over Fullerton for the reasons discussed above. More specifically, claim 100 requires generating first and second position estimates and using the first and second estimates to generate a final position estimate. Fullerton teaches generating a direction estimate and a distance estimate and using those estimates to generate a single position estimate. Distance and direction estimates are not position estimates.

Claims that depend from claim 100 include additional distinguishing limitations. To this end, claim 102 requires confidence factors. Fullerton fails to teach or suggest confidence factors and therefore these claims are novel over Fullerton for these

additional reasons.

4-5. The Office Action rejected each of claims 82-86, 96, 97 and 105 as obvious over Fullerton in view of McCrady. Applicant traverses this rejection.

With respect to claim 82, claim 82 requires, among other things, attempting to use first and second subsets of position information to identify first and second WID position estimates, rendering the first position estimate accessible to applications when the first estimate is identified and rendering the seocn position estimate accessible to applications when the first estimate is not identified and when the second estimate is identified. Thus, here, there is a preferred estimate (the first estimate) and the second estimate is only rendered accessible when the first estimate cannot be identified.

As an initial matter, Fullerton fails to teach or suggest attempting to generate first and second position estimates. Fullerton teaches a system for identifying the position of an object or a device by identifying a distance of the object from a fixed location and identifying a direction from the fixed location to the object and then using the distance and direction information to identify a single location estimate. A distance alone clearly is not a position estimate. Similarly, a direction alone is not a position estimate. To this end, if someone were to state that a vehicle was five hundred miles from Denver Colorado, the distance specification alone would not indicate a position. Similarly, if someone were to state that a vehicle is directly east of Denver Colorado, the direction specification would not alone indicate a position. However, the combination of a direction and a distance does comprise a single position estimate. Thus, Fullerton teaches a method for generating a distance estimate and a direction estimate and using the direction and distance estimates together to generate a single position estimate as opposed to attempting to generate first and second position estimates and rendering one of the estimates accessible by applications.

In addition, Fullerton fails to teach or suggest that one estimate of any type should be preferred to another estimate of any type as required by claim 82 (i.e. one

estimate is rendered accessible when identified and the other estimate is only rendered accessible when the one estimate is not identified). In this regard, even if distance and direction estimates in Fullerton were some how construed as being position estimates, Fullerton does not teach or suggest that one of the estimates could be used without the other to determine the position of a device – this is not surprising as, as indicated above, a position has to require both a direction and a distance from a single location.

In general, McCrady teaches that in many cases where a set of wireless devices are used to identify the location of a mobile device, the optimal subset of the wireless devices to be used to identify the mobile device location will change as the mobile device is moved about within a space, that known locations of mobile devices can be used to identify the locations of other mobile devices and that the optimal subset of mobile devices for determining the location of one mobile device may change as other mobile devices are moved about within a space. Thus, for instance, at a first time when a first mobile device is at a first location, the location of the first mobile device is to be determined and there are five stationary wireless access point devices within transmitting distance of the first mobile device, a subset of three of the stationary devices may be selected as optimal while at a second time when the first mobile device is at the first location and two other mobile devices are within transmitting distance of the first device, a subset including one of the stationary devices and the two other mobile devices may be selected as optimal.

The portion of McCrady cited in the Office Action with respect to claim 82 teaches that, to determine which subset of devices is optimal for determining the location of the first mobile device, the first mobile device first performs a ranging process whereby the first mobile device determines how far away the other devices are within the space. After the ranging process is completed, the first mobile device selects the optimal subset of devices, generally as a function of the distances between the first mobile device and the other devices and then uses a single set of data associated with the optimal device subset to generate a <u>single location estimate</u>.

McCrady's ranging is simply roughly determining distances (i.e., within a range – hence the term "ranging") between a first device to be located and other devices in the vicinity of the first device. As described above, a distance or range is not a position estimate.

In addition, McCrady fails teach a predefined preference between estimates of any type. To this end, even in range values where incorrectly construed as position estimates, McCrady teaches that the optimal set of ranges and associated devices is selected dynamically as a function of the ranges and perhaps other spatial orientations (i.e., two devices may be along the same line of sight – see McCrady's col. 16, lines 44-45). Thus, the claim 82 predefined preference for the one estimate over the other estimate further distinguishes the claim from McCrady.

Moreover, in McCrady, during the ranging activity, any time a transmission is received by the device that performs the ranging process, the device generates a range value and McCrady fails to contemplate a case where, when data is received, a range value is not generated as required by the last element in claim 82 (i.e., "when an estimate is not identified").

For at least the above reasons Applicant believes that claim 82 and claims that depend there from are novel and non-obvious over Fullerton in view of McCrady and requests that the rejection be withdrawn.

Claim 83 further requires identifying confidence factors for each of first and second estimates when the first and second estimates are both identified and then identifying the estimate with the highest confidence factor as a final estimate. As described above with respect to claim 53, Fullerton teaches correction factors used in an interpolation process and fails to teach or suggest confidence factors that indicate relative accuracy. For this additional reason Applicant believes claim 83 is distinct over the cited references.

With respect to claim 96, claim 96 requires, among other things, estimating device position using a first estimating program, identifying a confidence factor for the

first position estimate, when the confidence factor is high, rendering the estimate accessible and when the confidence factor is low repeating the process using a second position estimating program. As described above, neither Fullerton nor McCrady teach or suggest a process wherein two position estimates are generated in any case. Again, Fullerton teaches a distance estimate and a separate direction estimate while McCrady teaches multiple range estimates. Separate direction, distance and range estimates are not position estimates as that phrase is used in claim 96. In addition, neither Fullerton nor McCrady teach or suggest confidence factors. Moreover, neither of the cited references teaches or suggests a cyclical process whereby different positioning algorithms are performed after a true position estimate has been generated when the estimate is deemed to be unacceptably accurate. For at least these reasons Applicant believes that claim 96 and claims that depend there from are distinct over the cited references and requests that the rejection be withdrawn.

With respect to claim 105, claim 105 requires, among other things, attempting to identify first and second different position estimates of a device and, when at least one of the estimates is sufficiently accurate, rendering the likely most accurate estimate accessible as a final estimate. As described above, neither Fullerton nor McCrady teach or suggest a process wherein an attempt is made to generate two position estimates. Again, Fullerton teaches a distance estimate and a separate direction estimate while McCrady teaches multiple range estimates. Separate direction, distance and range estimates are not position estimates as that phrase is used in claim 96. In addition, neither Fullerton nor McCrady teach or suggest determining if an estimate is sufficiently accurate or rendering a likely most accurate estimate accessible. For at least these reasons Applicant believes that claim 105 and claims that depend there from are distinct over the cited references and requests that the rejection be withdrawn.

Applicant has introduced no new matter in making the above remarks. In view of the above remarks, Applicant believes claims 53-92 and 96-107 of the present

application recite patentable subject matter and allowance of the same is requested. No fee in addition to the fees already authorized in this and accompanying documentation is believed to be required to enter this amendment, however, if an additional fee is required, please charge Deposit Account No. 17-0055 in the amount of the fee.

Respectfully submitted,

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